

What is claimed is:

1. Frequency modulation switching apparatus for rapidly increasing and decreasing the frequency within radio-frequency pulses of radio wave pulse trains transmitted by an antenna having series inductance and capacitance, the apparatus having, in combination, a solid state four-terminal rectifier bridge circuit with opposing pairs of bridge terminals connected with one pair of opposing terminals shunting said inductance and said capacitance; and <sup>saturable</sup> series-connected staturable and linear inductors and an SCR switch connected between the other pair of opposing terminals of the bridge circuit, whereby the high-speed triggering of the SCR on effects corresponding high-speed frequency increasing or decreasing of the frequency within the radio-frequency pulse to provide the desired frequency modulation therein.

obj  
silicon  
controlled  
Rectifier

2. The apparatus of claim 1 wherein the radio-wave pulse trains are Loran-C navigation pulses.

3. The apparatus of claim 2 wherein the bridge rectifiers are symmetrically disposed in each of the arms of the bridge.

4. The apparatus of claim 2 wherein the triggering of the SCR is effected in accordance with digital bits comprising communication to be added to the Loran-C navigation transmissions and without impacting the navigation utilization thereof.

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5. A method of providing frequency modulation within radio-frequency pulses transmitted by an antenna having series inductance and capacitance, that comprises, connecting a solid-state four-terminal rectifier bridge having two pairs of opposing bridge terminals with one pair of said terminals in shunt with said antenna inductance and capacitance; interposing series-connected saturable and linear inductors and an SCR switch between the other pair of opposing bridge circuit terminals; and high-speed triggering the SCR on to effect corresponding high-speed frequency increasing or decreasing of the frequency within the radio-frequency pulse to provide the desired frequency modulation therein.

6. The method of claim 5 wherein the radio-wave pulses are Loran-C navigation pulses.

7. The method of claim 6 wherein the SCR is triggered in accordance with digital bits comprising communication to be added to the Loran-C navigation transmission and without impacting the navigation utilization thereof.